DOCUMENT RESUME

ED 027 976 PS 001 903

Infant Education Research Project, Washington, D.C.; One of a Series of Successful Compensatory Education Programs. It Works: Preschool Program in Compensatory Education.

American Inst. for Research in Behavioral Sciences, Palo Alto, Calif.

Spons Agency-Office of Education (DHEW), Washington, D.C. Div. of Compensatory Education.

Report No-OE-37033

Pub Date 69

Note-26p.

Available from-Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 20402 ($0.35)

EDRS Price MF-$0.25 HC Not Available from EDRS.

Descriptors-Cognitive Development, *Compensatory Education Programs, Individual Development, *Infants, Intellectual Experience, Motor Development, Parent Attitudes, *Program Descriptions, *Program Evaluation, Story Reading, *Tutorial Programs, Verbal Stimuli, Visual Stimuli

Identifiers-Bayley Infant Scale, Peabody Picture Vocabulary Test, PPVT, Stanford Binet, Washington D.C.

In a study to determine whether or not culturally deprived children develop at progressively greater deficits in intellectual functioning during the ages of 15 months to 3 years, tutors provided 15-month-old infants with intellectual and verbal stimulation one hour daily, five times a week until they were 36 months old. The subjects consisted of Negro males from homes that met two of the following three criteria: (1) family income was $5,000 or less, (2) mother's formal education was less than 12 years, and (3) mother had been an unskilled or semiskilled worker. The experimental group contained 28 children and the control group numbered 30. Pretests on the Bayley Infant Scales showed the controls slightly superior (but not significantly) to the experimentals at 14 months. At 21 months, the experimentals had gained significantly (.05 level). Posttesting on the Stanford-Binet at ages 27 and 36 months showed experimentals were significantly superior to controls at the .01 level. When the subjects were 36 months old, the Peabody Picture Vocabulary Test and Johns Hopkins Perceptual Test showed that the experimentals were significantly superior at the .01 level; the Aaronson-Schaefer Preposition Test also showed gains but not at a significant level. (JS)

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

ED027976

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INFANT EDUCATION RESEARCH PROJECT
Washington, D.C.

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IT WORKS

INFANT EDUCATION RESEARCH PROJECT
WASHINGTON, D.C.

One of a Series of

Successful Compensatory Education Programs

U.S. Department of Health, Education, and Welfare
Robert H. Finch, Secretary

Office of Education
Peter P. Muirhead, Acting Commissioner

FOREWORD

This project report is part of an independent study of selected exemplary programs for the education of disadvantaged children completed by the American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif., under contract with the U.S. Office of Education.

The researchers report this project significantly improved the educational attainment of the disadvantaged children involved. Other communities, in reviewing the educational needs of the disadvantaged youngsters they serve, may wish to use this project as a model - adapting it to their specific requirements and resources.

Division of Compensatory Education
Bureau of Elementary and Secondary Education

THE INFANT EDUCATION RESEARCH PROJECT IN WASHINGTON, D.C.

Introduction

Tutors provided intellectual and verbal stimulation to children, from the time the children were age 15 months until they were age 36 months. Instruction was on a one tutor:one child basis, 1 hour per day, 5 days per week, in the child's home.

The children were Negro males. They were drawn from homes that met two of the following three criteria: 1) the mother's formal education was less than 12 years; 2) the mother's work history was of unskilled or semi-skilled employment; and 3) the family income was $5000 or less. Fathers were absent in many of the homes; the families were of lower socio-economic status. All lived in deteriorated areas of Washington, D.C. An attempt was made to choose the participants from relatively stable homes, not so noisy or overcrowded as to interfere with the home tutoring sessions which were central to the project. Children were not selected if they displayed serious sensory or neurological problems.

The training of tutors and selection of children began in September 1965 and tutoring began 2 to 3 months later. There were 28 children in the experimental group and 30 in a control group. Follow-up evaluation continues.

Various tests of intelligence were used. The effectiveness of the program was indicated by the increasing superiority of experimentals over controls at intervals in the program.

Personnel

A. Project Director. (Approximately one-half time, divided into one-quarter time on research and one-quarter time on administration of the instructional program *per se*.)

The Project Director assumed overall responsibility for the project, participated in recruiting personnel, selecting the sample, and planning of data collection and analysis. He secured the cooperation of community agencies, conferred with the supervisor regarding day-to-day operation, and established policy.

B. Project Supervisor. (Full-time.)

The Project Supervisor conducted the day-to-day operation of the project under supervision of the director. He recruited the sample and the tutors, conferred with families to assure their ongoing cooperation, and scheduled the testing sessions and arranged the transportation in order to get the subjects to them.

C. Educational Supervisor. (Full-time. Master's degree in speech and previous nursery-school teaching experience.)

He planned the basic curriculum and instruction, purchased instructional materials, supervised tutors and organized a weekly group session with them.

D. Tutors. (Eight in number, full-time. Female; college degree; previous experience with inner-city children in such capacities as teaching or nursing. Approximately half were Negro.)

E. Secretary. (Full-time.)

Dr. Earl S. Schaefer, the project officer from the National Institute of Mental Health, was also a key figure in the development and continuing program.

Also, there were three part-time test administrators, whose duties were related to the research and evaluation, rather than the instructional component of the program.

Methodology: General

The instructional program was based upon certain rationale, summarized as follows:

> Studies of intellectual development have found no differences in mean mental test scores of infants from different social classes and from different races up to 15 to 18 months, but by the age of 3 years large differences between groups have emerged. A number of studies show that measures of intellectual level are highly correlated with verbal abilities as measured by tests of vocabulary and information, and that culturally-deprived groups and bilingual groups are more retarded on these verbal tests than on nonverbal tests of intellectual ability. Studies of lower socio-economic status groups have shown that such children receive less verbal stimulation from parents through mealtime conversation,

reading, and other shared experiences than middle-class groups and that the parents present less adequate models for language learning. These studies suggest the hypothesis that culturally-deprived children develop progressively greater deficits in intellectual functioning during the period from 15 months to 3 years - the period of early verbal development, because of lack of adequate intellectual, particularly verbal, stimulation.

The initiative of the tutor and the one-to-one tutor-pupil relationship were considered to be the cornerstones of the project. The curriculum sequence was to a large degree evolutionary, rather than pre-specified. The tutor tailored the training to each child in cooperation with the educational supervisor and with one other tutor who shared responsibility for the child.

The training of the tutors began with the initial period of 2 to 3 months before the tutoring began. During this period approximately half-time was devoted to training activities. There were lectures by the project officer, other senior project personnel, and university professors from appropriate disciplines. Three needs of culturally disadvantaged infants were emphasized: 1) need for positive relationships with other persons; 2) need for varied stimulation; 3) need for verbal development. The training period was meant to encourage certain attitudes and behaviors of the tutor, such as acceptance of the child's interests, praising of his achievements, maintaining with the child an attitude of enthusiastic exploration, and giving him the sorts of experiences that infants from the higher social classes usually enjoy. Tutors also visited children's institutions, and each had a pilot case for 2 weeks, to gain experience in tutoring and in dealing with the family.

The tutor then began the program of home visitation. Each child was tutored in the home for 1 hour a day, 5 days per week, from the time the child was 15 months old until he was 36 months old. Main emphasis was upon verbal development and concomitant concept formation. The tutor talked with the child, showed him pictures, taught new words, played games, read from books, assisted in coloring of pictures and construction of simple jigsaw puzzles, etc. Lesson plans were not rigid; emphasis was upon a flexible, spontaneous, and pleasant interaction between tutor and child.

The early sessions were devoted primarily to diagnosing the needs of the children and to discovering what items stimulated them. A wide variety of toys were used as stimuli, including

blocks, wooden animals, and nesting boxes, as well as various items around the home. Subsequent sessions were devoted to meaningful verbal exchange between tutor and child. Objects were named casually but often. The children were led gradually from the familiar to the novel; as they matured they became interested in being read to from books, looking at pictures therein, and taking walks about the neighborhood.

Participation of the mother and of other family members in the education of the infant was encouraged but not required. Frequently, the mother spontaneously joined the activity and asked the tutor's advice as to how she could continue the activity with the child and his siblings. Books and materials were left in the home by the tutor for this purpose.

The typical daily schedule of a tutor began with a half-hour to 1-hour conference with the educational supervisor or the cooperating tutor. Then there were two tutorial sessions in the morning and two again in the afternoon, followed by completion of progress notes on the children. Each tutor worked on alternate weeks with two different groups of four children. In this way, each child came to know two different tutors, rather than just one. Thus, if a tutor had for any reason been replaced during the program, the children affected would have some continuity from the remaining tutor.

The average tutoring time per child was 340 hours, or 16 hours per month for the 21 months of the program.

Each child was served continuously through the course of the project, even though some families moved several times, during this period.

Each mother was paid $1 per tutoring session and $10 each time she brought her child to one of several test administrations.

Tutors met with the educational supervisor in a weekly 2-hour group session. The function of these sessions was stated as follows:

> Primary emphasis will be upon group discussion of their experiences during the week, of problems they encountered, of methods and materials that proved useful, and of the developmental progress of the children. These sessions will also provide an opportunity to give further training to the tutors, to determine whether they are carrying out the program as planned, and to

distribute materials and books. One of the major goals will be to develop and maintain the interest and enthusiasm of the tutors by allowing them to share their experiences in a meaningful group.

At some of these weekly sessions the educational supervisor presented a general training program, while other sessions involved a specific case history on a particular child.

Methodology: Specific Examples

The tutors wrote up a number of activities which they tried during the course of the experiment, and which they felt were successful. Some of these are described or quoted here, along with the name of the tutor contributing each.

A. A number of objects, with which the child has become familiar, are placed in paper bags. These might include toy cars and animals, pencils, buttons, brushes, etc. A game is played, in which the child must reach into the bag, handle the objects, and name them sight unseen. The child is allowed to remove and play with those objects he can name. The tutor guides him or provides hints to enable him to name the remaining objects (Lucille Banks).

B. Since the most frequently stated aim of the project has been to stimulate verbal development, I have concentrated on singing in my presentation of music. I have selected a few songs which have simple words, appealing melodies and rhythms and, most important, are repetitive. I have repeated these songs until they have been mastered by the babies.

Two of the babies have expressed a strong preference for one particular song. In these cases, I have attempted to include the favorite song in each singing session since the babies become very excited and responsive when it is sung. From this song, I have moved to less familiar songs, hoping that the initial enthusiasm stimulated by hearing and singing a familiar song will carry over. The babies appear to derive much satisfaction from their increasing familiarity with and ability to perform these songs.

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Among the songs selected initially were:

"Shoo, Fly, Don't Bother Me"
"Skip to My Lou"
"Three Blind Mice"
"London Bridge"
"Yonder Tree" (used specifically for imitation of animal sounds.)

Later, I added:

"Wake Up" - both include motions
"Put Your Finger in the Air" with the words.
"Take Me Ridin' in the Car" (because of the appeal of this activity.)

The recordings were by Pete Seeger, Cisco Huston, and Woody Guthrie, all of whom are particularly adept at presenting children's songs in a captivating manner. They also repeat each song several times, a great aid to teaching and learning.

When the babies were young (15-18 months), I held them on my lap or arms, facing me, and moved my body or knees to the rhythm of the song, at the same time articulating the words carefully and drawing the child's attention to my singing by holding him close and using exaggerated facial expression. I repeated the same songs until eventually the child attempted to sing. At this point, I simplified the words, concentrating on those which were repeated most often in the song and therefore easiest to perceive and repeat. For example, in presenting "Shoo, Fly, Don't Bother Me," I sang <u>Shoo Fly</u> in the correct places throughout the song, I encouraged him to add the remainder of the phrase, <u>don't bother me.</u> The phrase, <u>for I belong to somebody</u>, because of its length and the rhythm with which it is sung, comes much later. When the child is unable to perceive the words from the recorded presentation, I have repeated them more slowly, later without the recording.

Once the child has become interested in the actual singing of the songs, I have lessened body contact and emphasized the rhythm, concentrating only on the words. When the child becomes tired of singing, I terminate the music session rather than changing the emphasis to clapping, etc.

I have found that the length of time required to learn a song has lessened considerably (in some cases, the child enters in during the first presentation) as the children become able to focus their attention on the words and as I continually reinforce, with praise and enthusiasm, their attempts to sing the words. (Patricia Chernoff)

C. I usually make the initial introduction of puzzles to a child who has shown me through other activities, viz., nesting cups, pop beads, stringing beads, towering blocks, etc., that he has capable fine motor control for such a task.

The presentation of the puzzle comes always as a fun game - a kind of "I Can Do It; Now, Let's See If You Can" situation - and usually is connected with some facet of our other activities. For example, we see a picture of a cat - the cat puzzle; a dog - the dog puzzle.

We talk about the puzzle while it is still intact; then dump out the pieces (and this act I leave to the child, because he seems to derive great pleasure from the "dumping"); then talk about the side with colors on it and the dark, rough side; then trace with our fingers around the inside of the puzzle; then attempt to fit the pieces in the puzzle.

It is important that the child complete the task, but it is imperative that he not become so frustrated in his attempt to do so that he sets up a negative block against the activity. For this reason, I initially put the pieces back slowly in the puzzle so that the child can observe me. This is the "I Can Do It" part. We then see if he can do it, with the assistance he may require to prevent overt frustration. When there are signals that assistance is required, I put my hand over the child's hand on the puzzle piece, and I explain, "Turn it around," or "Turn it over," or "Try another space," as we do what each command directs.

We may work on a single puzzle for five sessions, but with the majority of children, this is more than sufficient time for them to successfully grasp the concepts of that one puzzle and to complete it. There is no urging on my part. For the most part, it comes from the child himself when he is presented, for example, with a three-piece puzzle which he knows he can complete. He completes the assigned

puzzle and puts it aside. He is bored with this one and is ready to move on to bigger and better things in the line of puzzles.

The puzzle problem must be approached with care, I believe, because it encompasses so much that is new in the child's realm: perception of shape, depth, color; his senses of sight and touch to distinguish one edge shape from another. Puzzles, as with any other task presented to the child, cannot be pushed. The child will give his teacher indices by which she can go as far as his readiness permits. (Betty Pair)

D. I began working with the subject children when they were about 2 years old. Books had already been presented to the subjects as early as 16 months of age. The attention span was short at this stage.

To increase the attention spans, I tried to select books that appealed to the subjects. The most popular type of books were the picture books. (Examples: ABC Book, Things to See, Baby's First Book, Animal Panorama.) These books have big, colorful pictures the subjects can identify with easily - familiar animals (cats, dogs, birds) and foods (apples, oranges, etc.). These books were presented at each session. Sometimes the child received pleasure from turning the pages. I named pictures and imitated if the picture was an animal. The boys really got a kick out of this. We played other games, too. Sometimes the child enjoyed just pretending he was eating the picture of food.

We took books along on walks to help the subject child realize that the pictures represented reality. I pointed out a picture of a dog, for instance, in the book and then pointed to a live dog. Another game we played to help the subject remember pictures in books was to chase or feed animals that were in the books (i.e., squirrels and elephants). I also brought books with pictures that represented family members. Each picture was named after one of the family members. A family game set helped to make the learning more fun. Each figure in the set represented a member of a family (boy, girl, mother, father, etc.). The subjects had fun naming each figure or, sometimes, just knocking them over. Sometimes the child would

take a figure to his parents and say its name. If he could not name the figure, the mother would tell him.

I included parents whenever possible. Sometimes the parent could get the child interested in a book when all the tutor's efforts failed. Other siblings were used to encourage the subject to look at books. For example, if the subject refused to look at a book, I would look at the book with an older sibling. The subject child became jealous and then joined in looking at the book with the tutor. We sang songs about pictures and dramatized. We also used toys along with the books. First, I would point out pictures in the book and then give the child a toy like the picture. This was very effective.

Books were made and left in the homes. The child and I would cut out pictures that were in magazines and make our own book. Other books that the child enjoyed were also left in the home. Sometimes the older siblings took an interest in the books left and would help the subject name pictures. This was another effective method since the subject child imitated older siblings readily. The subject child was praised whenever he could name, imitate or recognize pictures in any way. This encouraged the child to make an effort to learn....

.... The story book and record combination has been successful. First, I tell the story, pointing out different portions of the story. Then the same story is played on the record player. The first thing on the record that interests the child is the phrase, "Turn the page." After hearing the record several times, the child began to get more interested. The story is told at least once or twice a week until the child masters the story. Three of my boys have done a good job with <u>Peter and the Wolf</u>. They can name all the characters in the story and can describe many actions taking place by looking at the pictures.....

.... Cliff (subject child) likes animal books. He knows many animals and can imitate them. He can name the more difficult ones such as the rhinocerous, zebra, seal, racoon, and buffalo. To encourage his interest, I have taken him to the zoo several times and also to the Rock Creek Nature Center, the Smithsonian Natural History exhibits, and the circus. His mother has taken him to the country.

This child really got a thrill out of seeing the live animals. Some of Clifford's favorite books include The Zoo Book, Animal Panorama, Animal Book, and several others.

Sam prefers books about horses. Whenever he sees a picture of a horse, his face lights up. I provided this child with as many horse books as I could find. I also took this child on trips to see horses and ride ponies. He has been on the carrousel several times, to the circus, and also had a ride on a live horse! Whenever I present a picture of a horse, Sam relates his experiences. He loves horses so much that he will sit for 45 to 60 minutes looking at a book with pictures of horses in it. (Lucille Banks)

E. One tutor reports the following books as being among the most successful: Things to See, A B C Book, Best Word Book Ever, Whistle for Willie, and (when the children were older) the illustrations of the Banks Street Readers, which depict city life involving Caucasian, Negro, and Oriental children. The object of the children's "lively interest" evolved from picture books (at age 15 months, when the project began) to story books (beginning at about 28 months). This teacher felt much more successful with realistic books than with those which: 1) depicted animals in human dress, engaging in human activities; 2) presented inanimate objects (e.g., airplanes) as being animate; 3) presented nursery rhymes, which contain many words for which referents are lacking, e.g., curds and whey. (Patricia Chernoff)

F. Another tutor notes that at the beginning of the project, toys were the major instructional vehicle, with books secondary. As the children matured, however, these roles were decidedly reversed. At first, even picture books were ignored, and became of interest to the children only after sufficient handling and naming of the material referent. For instance, a picture of a ball was ignored by the child until he had played with and named a real ball on a number of occasions. This tutor reports that the most effective books at this early stage were those dealing with the sensations, such as Pat the Bunny and Touch Me, or those having large and brightly colored illustrations, such as Things to See and Baby's First A B C. As the children grew, they became increasingly interested in the vehicles they saw while walking with this tutor (the reader will note that these children were all boys). At this time the Big Book of Trucks and the Giant Nursery Book of Things That Go were particularly enjoyed by the boys. Durable, cloth-bound books were recommended, since they could be left in the home "with some hope of finding

them intact at the next session." (Betty Pair)

G. Project personnel furnished the following list of recommended books:

AGE - 15 to 18 Months

	BOOK	PUBLISHER
*	Pat the Bunny	Golden Press
*	Touch Me Book	Golden Press
*	Things to See	Platt & Munk
*	1st A B C Book	Platt & Munk
	Baby's First Mother Goose	Golden Press
	My Toys	Capitol
	Words to Say	Golden Press

AGE - 18 to 24 Months

	BOOK	PUBLISHER
	Baby Farm Animals	Golden Press
	My Toys	Capitol
	Happy Animal Panorama	Grossett & Dunlop
	Baby's Picture Panorama	Grossett & Dunlop
	All by Himself	Plakie Product
	Golden Happy Book of Numbers	Golden Press
	Golden Happy Book of Words	Golden Press
	Golden Happy Book of Animals	Golden Press
	Golden Happy Book of A B C's	Golden Press
	I Am a Bunny	Golden Press
*	Is This The House of Mistress Mouse	Golden Press
*	Best Word Book Ever	Golden Press
*	Golden Shape Books (entire series)	Golden Press
	The Fish	Dick Bruna Follett Pub. Co.
	The Apple	Dick Bruna Follett Pub. Co.
	Big Train Book	McGraw & Hill

AGE - 24 to 36 Months

	BOOK	PUBLISHER
	Woodland Animals	McGraw & Hill
	Come Walk With Me	Capitol

* Books considered most valuable by project personnel

AGE 24 to 36 Months (Cont'd)

	BOOK	PUBLISHER
	Whistle for Willie	Viking
	Night	Harper & Row
	Little Verses	Golden Press
*	Uptown Downtown	Banks Street Readers
*	Around the City	
	Saturday Walk	Wm. R. Scott
	Dr. Seuss' A B C Book	Random House
	Put Me in the Zoo	Random House
	Cat in the Hat	Random House
	Hop on Pop	Random House
*	Go, Dog, Go	
	Goodnight, Mom	Harper & Row
	The Big Parade	McGraw & Hill
	What's That?	Grossett & Dunlop
	Who's That?	Grossett & Dunlop
	When's That?	Grossett & Dunlop
	Where's That?	Grossett & Dunlop
	Big Beds & Little Beds	Wonder Books
*	Peter and the Wolf	Doubleday
	Aesops Fables	Maxton
	The Bike Lesson	Random House
	Are You My Mother	Random House
	Bear's Picnic	Random House
	A Fly Went By	Random House
*	Giant Nursery Book of Things That Go	Doubleday
	Giant Nursery Book of Travel Fun	Doubleday,
	Giant Nursery Book of Things That Work	Doubleday,
	Red Riding Hood	McMillian
	One Fish, Two Fish, Red Fish, Blue Fish	Random House
	The Snow Day	New York:Viking
	What Is Your Favorite Thing To Touch	Grossett & Dunlop
	Let's Go Shopping	Capitol
	Up Is Up, Down Is Down	McGraw & Hill
	The Wonder Book of Turtles	Eve Morel
	A Special Place for Johnny	Whitman
	Katie & the Big Snow	Maxton
	I Learn to Tell Time	Capitol
	The Brave Little Mouse	McGraw & Hill
	Fast & Slow	Platt & Munk
	I Learn to Button	Capitol
	The Color Wheel	McGraw & Hill
	Whisper in My Ear	Golden Press
	Happy Zoo Book	McGraw & Hill

* Books considered most valuable by project personnel

H. Project personnel also furnished the following list of recommended toys.

MOTOR ACTIVITY TOYS:

1. String and Beads - Milton Bradley or Fisher Price
2. Peg Boards and Pegs - Milton Bradley or Child Craft Bowls for pegs.
3. Junior Turn a Gear - Child Guidance Toy
4. Snap and Play - Sifo
5. Bill Ding, Jr. - Sifo
6. "Building Toy" (in can)
7. Jumbo Block Wagon - Playskool
8. Pounding Bench - Playskool
9. Tool Bench - Playskool
10. Plastic Milk Bottles - Creative Playthings
11. Lock and Keys
12. Watch
13. Lacing Shoe - Playskool
14. Tinker Toys - The Toy Tinkers (A.G. Spaulding Bros., Inc)
15. Rock-a-Stack - Sifo or Fisher Price
16. Hexagonal Nesting Cups - Child Craft
17. "Barrel" Nesting Cup - Child Guidance Toy or Child Craft
18. Plastic Shapes on a Stick - Fisher Price Toy
19. Wooden Shapes on a Stick
20. Plastic Shapes on Plastic Screw
21. Plastic Nesting Cups
22. Measuring Spoons
23. Bang Ball - Sifo
24. Large Bags of Wooden Blocks
25. Geometric Shapes - Creative Playthings
26. Graded Circles, Squares, Triangles - Creative Playthings
27. Shape - Sorting Box - Creative Playthings
28. Rocky Board - Creative Playthings
29. Pile-up Clowns - Creative Playthings
30. Wood, Nuts, and Bolts - Creative Plaything
31. Beginner's Blocks - Creative Playthings
32. Pop-up - Sifo
33. O-Blocks - Sifo
34. Plain and Colored blocks - Sifo
35. Music Box Lacing Shoe - Fisher
36. T.V. Radio - Fisher Price
37. Pocket Radio - Fisher Price
38. Pop Beads - Fisher Price
39. Dump'n Fill Bottles - Child Craft
40. Lincoln Logs - Playskool
41. Hydroplane - Creative Playthings

DOLLS:

1. Negro Boy Doll
2. Baby in Pajamas
3. Baby (minus clothes)

TOY VEHICLES:

1. Dump Truck
2. Plastic Tug Boat
3. Bulldozer
4. Large Wooden Truck
5. Moving Van
6. Oil Trucks
7. Volkswagon
8. Airplanes
9. Pick-up Truck
10. Orange Dump Truck-Metal
11. Cement Mixer
12. Large Plastic Dumptruck

PULL AND PUSH TOYS:

1. "Snoopy Sniffer" - Fisher and Price
2. Milk Wagon - Creative Playthings
3. Playskool Wagon with Blocks - Playskool
4. Wagon - Sifo
5. Tyke Bike - Playskool
6. Metal Wagon - Child Craft
7. Tricycle
8. Magnetic Train - Creative Playthings
9. Creative Coaster - Fisher Price
10. Rainbow Wagon - O - Block - Sifo

MISCELLANEOUS:

1. Jingle Totem Pole
2. Magnets - Creative Playthings
3. Prism
4. Spin Top
5. Plastic Tools on Belt
6. Plastic Telephone
7. Playskool Postal Stations
8. Flannel Board
9. Pocketbooks
10. Plastic Duckling

11. Wind-Up Mouse
12. Can of Farm Animals
13. Big Top
14. Little Tops
15. Dishes: Cups, Saucers, Coffee Pots, Skillet, Plastic Silverware Tray
16. Mirror, Comb
17. Mirror Box - Creative Playthings
18. Puppets - Creative Playthings
19. Color Paddles - Creative Playthings
20. Playful Puppy - Creative Playthings
21. Lock Box - Creative Playthings
22. Number Sorter - Creative Playthings
23. Counting Frames - Holgate - Playskool
24. Number with Pegs - Creative Playthings
25. Number-ite - Judy
26. Toy Maker - Child Craft

GARDEN TOOLS:

1. Rakes
2. Hoes
3. Brooms
4. Shovels
5. Lawn Mower

OUTDOOR TOYS:

1. Balls
2. Pails and Shovels
3. Plastic Buckets
4. Plastic Scoops
5. Watering Cans
6. Skates

RECORDS: (Record Players)

1. Learning as We Play
2. Nursery Rhymes, Games and Folk Songs
3. Songs to Grow on for Mother and Child
4. American Game and Activity Songs for Children
5. Songbirds of America
6. Songs to Grow on
7. Noisy Baby Animals
8. Nursery Rhymes

MUSICAL INSTRUMENTS:

1. Bells - Creative Playthings
2. Drums and Drumsticks - " "
3. Wooden Sticks - " "
4. Xylophone - " "
5. Shaker Stick - " "
6. Castanets - " "
7. Triangle - " "

PUZZLES:

1. Plate Puzzle - Playskool
2. Fruit Puzzle - "
3. Colors I See Puzzle - Playskool
4. Building Puzzle - "
5. Form Board - "
6. Dog Puzzle
7. Puzzle Blocks
8. Rainy Day Puzzle
9. Color Match-ettes
10. Shapes, Colors, Forms
11. Transportation Puzzle
12. Missing Face Puzzles - Creative Playthings
13. Matchettes - Judy
14. Airplane - "
15. Tree - "
16. Boy - "
17. Cat - "
18. Dog - "
19. Butterfly - "
20. Tools (single piece)
21. Squirrel
22. Monkey
23. Flower - Judy
24. Three Kittens - Sifo
25. Fruit - "
26. Playground "
27. Rainy Day
28. Plate
29. Rubber Family
30. Rubber Cars
31. Rubber Ducks and Rabbits
32. Buildings We see - Sifo
33. Vegetable Puzzle - "

34. Eighteen Piece Bird Puzzle - Judy
35. Children's Favorites - Sifo
36. Children's Pets "
37. Peter, Peter, Pumpkin-Eater - Sifo
38. Five Pice Animal Puzzle
39. Simplex Bear
40. Rubber Counter - Creative Playthings
41. Wood Lotto - " "
42. Little Jack Horner
43. Fireman's Puzzles - Judy
44. Zoo Lotto
45. Horse Puzzle - Playskool
46. Hippo - "

VERBAL STIMULATION TOYS:

1. Plastic Magnetic Letters
2. Sandpaper Letters
3. Slates
4. Family Hand Puppets - Creative Playthings
5. Story Sets
6. Telephone

Evaluation

A. Measures of Achievement

All infants, experimental and control, were tested at age 14 months, before the experimental tutoring began. The Bayley Infant Scales of Development were used. The infants were retested with the Bayley at 21 months, and with the Stanford-Binet at 27 and at 36 months. Three other tests were also used at 36 months: 1) the Peabody Picture Vocabulary Test; 2) the Johns Hopkins Perceptual Test; 3) the Aaronson and Schaefer Preposition Test. (This consists of a magnetic board with three objects: an automobile, a boy, and a ball. The subject's command of prepositions is tested, when he is asked to place the ball "between the boy and the car," "into the car," "at the top of the board," etc.) The three part-time test administrators gave the tests at the project offices and were not told which children were in the experimental and which were in the control group.

Test results are summarized in the following tables. It can be seen that the experimentals were not superior to the controls at the outset. (In fact, they were slightly lower, though not significantly so.) However, as instruction proceeded, they apparently grew increasingly superior to the controls.

Table 1

MEAN IQ SCORES AT INTERVALS DURING INFANT EDUCATION PROJECT

Age, in Months	Experimental (n 28)	Control (n 30)	t
14	105	108	-.96
21	97	90	2.12*
27	101	90	3.35**
36	106	89	5.91**

* Significant, .05.

** Significant, .01.

Table 2

MEAN SCORES ON VARIOUS TESTS AT 36 MONTHS, INFANT EDUCATION PROJECT

Test	Experimental (n 28)	Control (n 30)	t
Peabody	87.11	76.23	3.77*
Johns Hopkins	11.61	6.60	4.18*
Aaronson-Schaefer	13.43	12.40	1.23

* Significant, .01

B. Other Evaluation Indices

It was the consensus of the staff that the tutors became an important and desired element in the families of the tutored children. As the project proceeded, tutors became increasingly accepted in the home and neighborhood, and were not perceived as inspectors or welfare

agents. As rapport was gained with the family, especially the mother, the tutor began to take on the role of a confidante and helper in diverse areas such as budgeting family finances, and use of community resources. In a number of cases, this project resulted in the family's first visit to the zoo or the library.

Problems experienced by the tutors included: the number of disruptions caused by the moving of several rather mobile families; the problem of finding the child ready to participate at the time of the visit; the lack of a quiet place in which to hold the tutoring session.

Project personnel felt that the weekly group discussions contributed significantly both to tutor morale and methodology.

Tutor ratings of parent behavior were correlated with achievement at 36 months. Child neglect was sigificantly related to performance in the expected direction; i.e., the more neglected children performed poorly.

C. Modifications and Suggestions

It was suggested by program personnel that in action programs evolving from this research project, neighborhood learning centers could be tried, providing a relatively quiet environment for tutoring sessions. Neighborhood mothers and high school girls could be responsible for much of the tutoring, since a high level of formal education was probably more necessary in the research phase of the program than would be necessary in subsequent action programs. The number of research and administrative personnel could also be reduced to possibly one overall educational supervisor and a secretary. One field supervisor for every 12 tutors was recommended. It was further suggested that instruction might begin as early as age 6 months, for optimum efficacy.

Budget

Project Director	Half-time
Project Supervisor	Full-time
Educational Supervisor	Full-time
Tutors, one for every four children	Full-time
Test Administrators	$25 per test session per child
Project Secretary	Full-time
Books and Materials	First year: $40 per child Subsequent year: $25 per child
Office Materials	$750 per year
Reimbursement of Parents	$1.00 per day of tutoring $10.00 per test session
Office Rental	
Local Travel	

Quoted Sources

1. *Schaefer, Earl S., "Intellectual Stimulation of Culturally-Deprived Infants." Mimeograph, 1965, excerpted from Mental Health Grant Proposal No. MH-09224-01.

For More Information

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* The Office of Education is collecting this material for placement in the ERIC system. Items may be obtained either in microfiche or hard copy.